

WEST
VIRGINIA

HEALTH SCIENCES

and RURAL HEALTH

West Virginia Higher Education Policy Commission

2015





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INTRODUCTION

The last year was extremely productive for the Division of Health Sciences and its academic and community partners. Some key highlights from this year's report:

- Out-of-state student enrollment continues to constitute around 50 percent of first-year medical student enrollment overall at the state's three medical schools.
- In keeping with historical performance, West Virginia medical school graduates scored well on national examinations required for licensure as physicians.
- Although slight variability occurs from year to year, most medical students graduate with a significant amount of debt.
- Whether a West Virginia medical school graduate stays in West Virginia to complete a primary care residency continues to be a major determinant in whether that physician will later select a West Virginia community for his or her practice site.
- The West Virginia Legislature's redesign of the Health Sciences Scholarship Program changed the name of the program to the Health Sciences Service Program, authorized larger awards, and increased the number of participating disciplines to 10 by adding pharmacy and dentistry students. Last year, 14 awards were made to two medical students, four dental students, four nurse practitioner students, two doctoral clinical psychology students, one physical therapy student, and one physician assistant student in exchange for each student's commitment to practice in an underserved community.
- The West Virginia Rural Health Initiative is evolving at each of the three academic health centers. All three institutions operate programs that identify the students and residents most interested in rural health and provide them with special training experiences to best prepare them for successful careers as rural practitioners.
 - o The Joan C. Edwards School of Medicine at Marshall University emphasizes a rural research program that allows participants to learn about study design and methodology while becoming immersed in a rural community or health issue.
 - o The West Virginia School of Osteopathic Medicine offers specialized activities designed to improve students' understanding of environmental exposures and injuries people working in West Virginia's most common industries regularly sustain.
 - o Students in the West Virginia University School of Medicine's Rural Track program in Family Medicine spend 3-4 weeks at a rural site the summer before medical school and the summer between their first and second year. Additionally, the students spend 12 weeks in a rural community in their third year and eight weeks in their fourth year.

Although the growth in health sciences education across the state is not without its challenges, the state's investments in health sciences education are the key to ensuring we produce the healthcare providers West Virginians need.

Robert B. Walker

Robert B. Walker, M.D.
Vice Chancellor for Health Sciences



MEDICAL SCHOOL PROFILES

The Marshall University School of Medicine and the West Virginia University School of Medicine are allopathic medical schools, and the West Virginia School of Osteopathic Medicine is an osteopathic medical school. The structure and content of allopathic and osteopathic medical education and training are similar in many ways, while different in others. For this report, where similarities exist, the three schools are discussed together, and where differences occur, the information for allopathic and osteopathic programs is broken out.

Both allopathic and osteopathic medical school applicants complete the Medical College Admission Test (MCAT) as part of the application process. The MCAT consists of three multiple choice sections each worth 15 points (Physical Sciences, Verbal Reasoning, and Biological Sciences) and a writing sample. For 2014-15 matriculants, the national combined mean MCAT score for students entering allopathic medical schools was 31.4; for students entering osteopathic medical schools the score was 27.2. The national mean grade point average (GPA) for these same allopathic students was 3.69 and for osteopathic students it was 3.51 (Association of American Medical Colleges and American Association of Colleges of Osteopathic Medicine).

MARSHALL UNIVERSITY SCHOOL OF MEDICINE

	2014-2015	2013-14	2012-13	2011-12	2010-11
ENTERING CLASS DATA					
Acceptances/Applicants (Admission Rate)					
In-State	87/149	80/169	59/134	70/174	78/191
	(58%)	(47%)	(44%)	(40%)	(41%)
Out-of-State	31/1,651	43/1,419	76/1,219	52/1,252	46/1,157
	(2%)	(3%)	(6%)	(4%)	(4%)
Total	118/1,800	123/1,588	135/1,353	122/1,426	124/1,348
	(7%)	(8%)	(10%)	(9%)	(9%)
Entering Class Mean GPA	3.60	3.60	3.53	3.52	3.54
Entering Class Mean MCAT	28.5	27.9	28.3	28.8	28.8
ACADEMIC YEAR DATA					
First Year New Enrollment					
In-State	61	53	29	40	48
Out-of-State	18	22	37	31	26
Total	79	75	66	71	74
Total Graduates	64	65	75	64	70
Total Medical Students	281	292	291	295	301
Tuition and Fees					
In-State	\$20,806	\$20,806	\$20,080	\$19,476	\$18,536
Out-of-State	\$47,676	\$47,676	\$47,670	\$46,266	\$45,326

WEST VIRGINIA SCHOOL OF OSTEOPATHIC MEDICINE

	2014-2015	2013-14	2012-13	2011-12	2010-11
ENTERING CLASS DATA					
Acceptances/Applicants (Admission Rate)					
In-State	62/123 (50%)	65/147 (44%)	88/173 (51%)	108/178 (61%)	59/154 (38%)
Out-of-State	439/4,340 (10%)	379/4,183 (9%)	306/3,893 (8%)	377/3,342 (11%)	404/3,298 (12%)
Total	501/4,463 (11%)	444/4,330 (10%)	394/4,066 (10%)	485/3,520 (14%)	463/3,452 (13%)
Entering Class Mean GPA	3.48	3.49	3.40	3.45	3.47
Entering Class Mean MCAT	24.8	24.6	24.1	24.0	25.1

ACADEMIC YEAR DATA

First Year New Enrollment

In-State	47	63	75	84	36
Out-of-State	151	130	123	126	166
Total	198	193	198	210	202
Total Graduates	181	184	195	160	197
Total Medical Students	819	817	838	817	806

Tuition and Fees

In-State	\$20,950	\$20,950	\$20,950	\$20,950	\$19,950
Out-of-State	\$50,950	\$50,950	\$50,950	\$50,950	\$49,950

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE

	2014-2015	2013-14	2012-13	2011-12	2010-11
ENTERING CLASS DATA					
Acceptances/Applicants (Admission Rate)					
In-State	79/189 (42%)	99/231 (43%)	80/159 (50%)	78/180 (43%)	88/196 (45%)
Out-of-State	102/3,222 (3%)	72/2,852 (3%)	84/2,352 (4%)	94/2,491 (4%)	91/2,382 (4%)
Total	181/3,411 (5%)	171/3,083 (5%)	164/2,511 (7%)	172/2,671 (6%)	179/2,578 (7%)
Entering Class Mean GPA	3.80	3.79	3.77	3.71	3.75
Entering Class Mean MCAT	29	29	28.3	28.4	28.4

ACADEMIC YEAR DATA

First Year New Enrollment

In-State	58	77	67	61	64
Out-of-State	52	33	39	43	40
Total	110	110	106	104	104
Total Graduates	103	78	106	100	94
Total Medical Students	421	404	423	430	424

Tuition and Fees

In-State	\$28,134	\$26,604	\$24,248	\$23,118	\$22,122
Out-of-State	\$55,107	\$53,028	\$52,188	\$49,728	\$47,884

MEDICAL LICENSURE EXAMINATIONS

Both allopathic and osteopathic medical students must complete a series of licensing exams in order to become licensed physicians. The allopathic test is the United States Medical Licensing Exam (USMLE) and the osteopathic test is the Comprehensive Osteopathic Medical Licensing Examination (COMLEX)-USA.

Students typically take the final USMLE or COMLEX soon after graduating from medical school. The data reported below is for first-time test takers who took their respective licensing exam within two years of graduation. In evaluating the data presented below, it is important to consider some of its limitations:

- The data is for first-time test takers.
- Graduates can elect to not report their results to their medical schools.
- The data does not reflect graduates who sit for the exam more than two years after graduation.
- Not all graduates enter residency programs and therefore do not sit for these exams.

Allopathic Medical School Graduates

The USMLE, Step 3 is the final of three tests completed by allopathic medical students. Graduates typically take USMLE, Step 3 at the end of their first year of residency. The data in the table is grouped by graduating class and is for first-time test takers only. The national average passage rate for first-time test takers for the graduating class of 2012 is 97 percent.

Number Passing/Number of Examinees, USMLE, Step 3, by Graduating Class

	2012	2011	2010	2009	2008
Marshall University	62/64 (97%)	55/58 (95%)	57/59 (97%)	45/49 (92%)	34/38 (89%)
West Virginia University	94/95 (99%)	93/93 (100%)	91/91 (100%)	96/98 (98%)	85/87 (98%)

Osteopathic Medical School Graduates

The COMLEX is the primary pathway by which osteopathic physicians apply for licensure. Osteopathic graduates take the final COMLEX examination, Level 3, as early as six months into residency training, but must complete Level 3 before starting their third year of residency training. The data in the table is grouped by graduating class and is for first-time test takers only. The national average is not available.

Number Passing/Number of Examinees, COMLEX, Level 3, by Graduating Class

	2012	2011	2010	2009	2008
West Virginia School of Osteopathic Medicine	144/147 (98%)	180/191 (94%)	134/136 (99%)	91/99 (92%)	85/94 (90%)

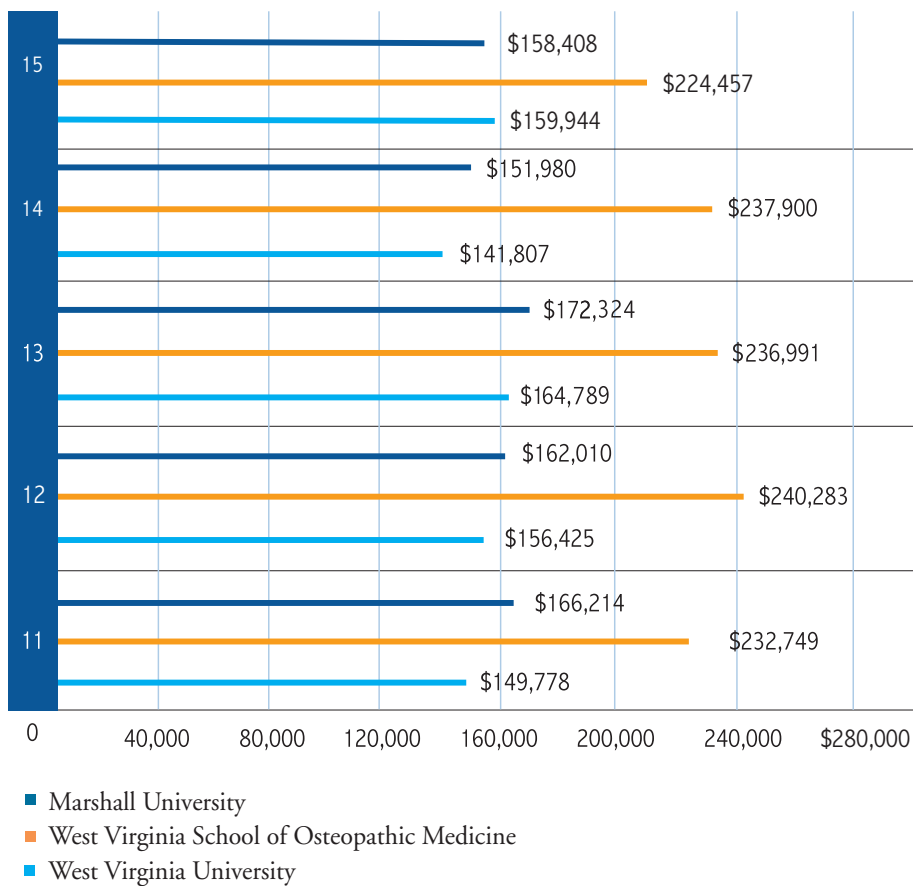


MEDICAL STUDENT INDEBTEDNESS

The average indebtedness of graduating medical students includes all loans, whether through the government or from private lenders, accumulated while pursuing their medical degrees. Average loan debt is calculated only from students who have loans and does not include pre-medical school debt. The difference in graduate indebtedness among the schools can be attributed in part to differences in the proportion of students paying non-resident tuition and fees.

Average Medical Student Debt, by Graduating Class

	Marshall University	West Virginia School of Osteopathic Medicine	West Virginia University
2015	\$158,408	\$224,457	\$159,944
2014	\$151,980	\$237,900	\$141,807
2013	\$172,324	\$236,991	\$164,789
2012	\$162,010	\$240,283	\$156,425
2011	\$166,214	\$232,749	\$149,778



RESIDENCY TRAINING

Upon graduation from medical school, physicians complete residency training (also referred to as graduate medical education) in a specialty before beginning practice. Residency training typically takes three to five years to complete. The federal Medicare program is the major funding source for residency programs. In West Virginia, the Medicaid program and the Public Employees Insurance Agency also provide funding to residency training.

Key indicators related to residency choice impacting the supply of physicians across West Virginia are:

- Location: graduates who complete residencies in West Virginia are much more likely to remain in the state.
- Specialty: primary care fields generally are most needed in rural West Virginia.

In West Virginia, a primary care residency includes any residency program in:

- family medicine
- internal medicine
- internal medicine/pediatrics
- obstetrics/gynecology
- pediatrics

All three West Virginia medical schools frequently place graduates in primary care residency programs at a rate at or above the national average for these same programs. For the 2015 residency match, the national average was 48 percent. (National Resident Matching Program)

However, completing a primary care residency program does not always translate to practicing primary care, particularly in an outpatient setting. Often, individuals entering internal medicine residencies forego a general internal medicine track, and instead subspecialize in fields not traditionally viewed as primary care, such as cardiovascular disease, gastroenterology, and infectious diseases. Additionally, there is a growing trend for primary care graduates to work as hospitalists in inpatient settings. Thus, some of the graduates counted below ultimately may not practice in an outpatient, primary care setting.

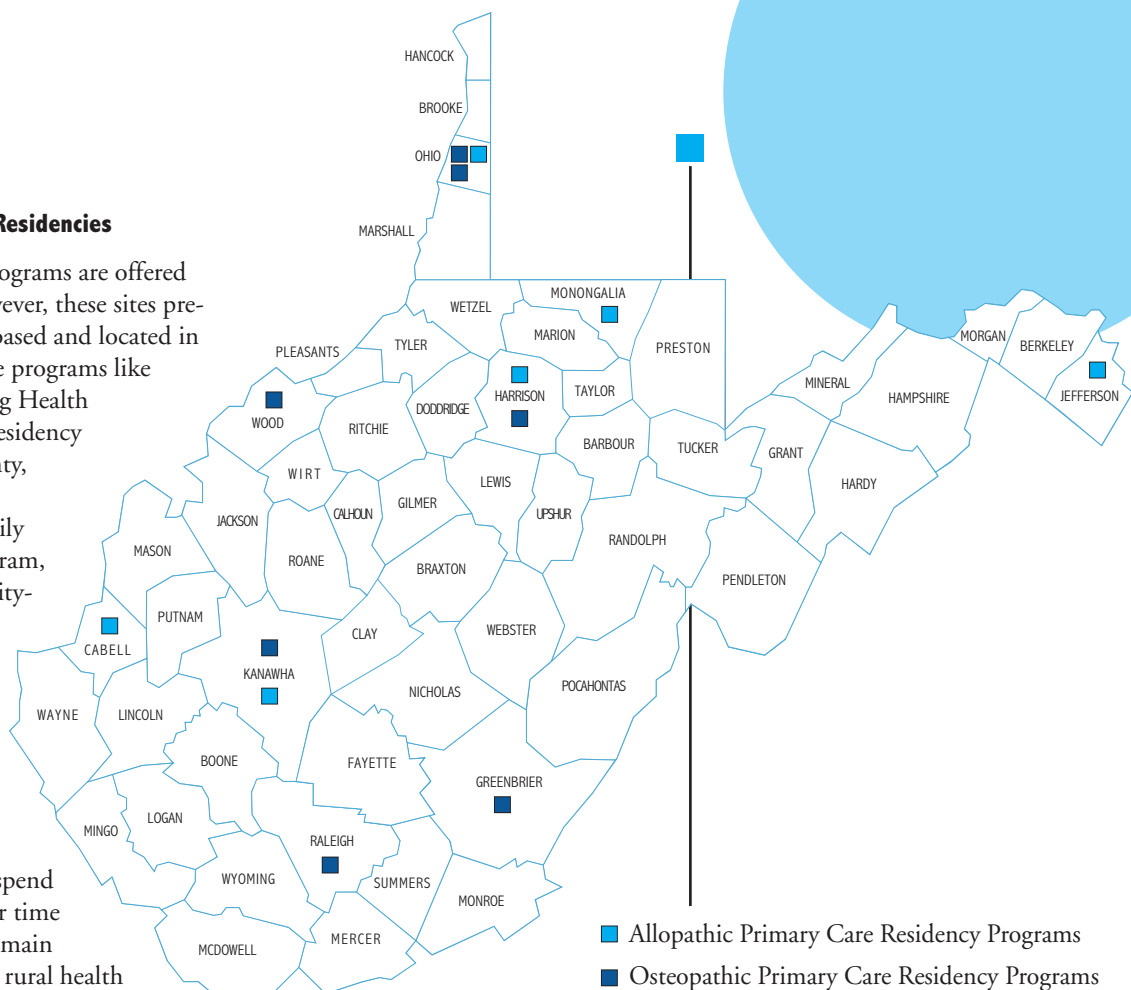
Number and Percentage of Graduates Choosing Primary Care Residencies, by Graduating Class

	2015	2014	2013	2012	2011
Marshall University	31 (48%)	33 (51%)	44 (60%)	41 (64%)	37 (54%)
West Virginia School of Osteopathic Medicine	111 (62%)	126 (68%)	133 (68%)	107 (68%)	123 (65%)
West Virginia University	48 (48%)	40 (51%)	48 (47%)	43 (43%)	38 (41%)



Location of Primary Care Residencies

Primary care residency programs are offered across West Virginia, however, these sites predominantly are hospital-based and located in more urban areas. Unique programs like the AccessHealth Teaching Health Center family medicine residency program in Raleigh County, West Virginia University-Harper's Ferry Rural Family Medicine Residency Program, and the Marshall University-Lincoln Primary Care Center Rural Residency Program allow residents to spend all or a significant portion of their residency in a rural or underserved area. As part of more traditional programs, residents may spend a small percentage of their time practicing away from the main residency site such as in a rural health clinic or a community health center.



Allopathic Primary Care Residency Programs, 2014-15

Charleston Area Medical Center, Kanawha County
Marshall University School of Medicine, Cabell County
United Hospital Center, Harrison County
West Virginia University Hospital, Monongalia County
West Virginia University Rural, Jefferson County
Wheeling Hospital, Ohio County

Osteopathic Primary Care Residency Programs, 2014-15

AccessHealth Teaching Health Center, Raleigh County
Camden-Clark Memorial Hospital, Wood County
Charleston Area Medical Center, Kanawha County
Greenbrier Valley Medical Center, Greenbrier County
Ohio Valley Medical Center, Ohio County
United Hospital Center, Harrison County
Wheeling Hospital, Ohio County



MEDICAL SCHOOL GRADUATE RETENTION

Retention denotes the number or percentage of West Virginia medical school graduates who remain in the state to practice. Retention is tracked annually for a six-year cohort of medical school graduates who have completed residency training.

The data in this section focuses on retention of West Virginia medical school graduates in primary care and/or rural practice.

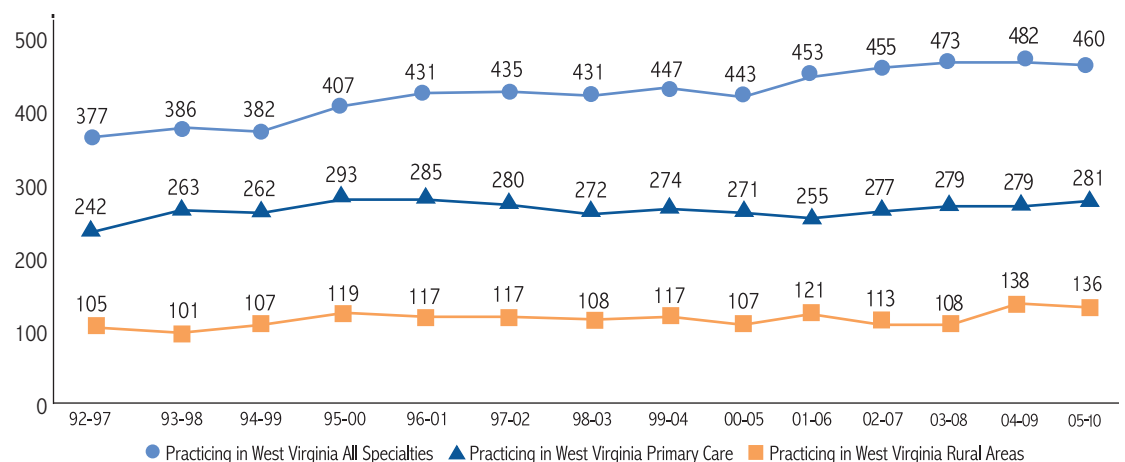
- Primary care is defined as family medicine, internal medicine, internal medicine/pediatrics, obstetrics/gynecology, and pediatrics.
- Rural areas include all areas of the state with a 2006 Rural Urban Commuting Area (RUCA) code of 4.0 higher. These codes classify U.S. Census tracts using measures of population density, urbanization, and daily commuting.
- Data is provided only for graduates who have completed their residency training.

Between 2005 and 2010, 1,353 graduates of the state's three medical schools completed residency training, either in West Virginia or another state, and 34 percent of these graduates are now practicing in West Virginia. Ten percent of the graduates in this cohort are practicing in rural West Virginia, and 21 percent are practicing primary care in the state (either in a rural or urban location). These percentages are down slightly from previous years. The growth in medical school class size at all three medical schools increases the total number of graduates significantly; however, issues still persist in recruiting graduates to practice in West Virginia in both primary care and rural settings.

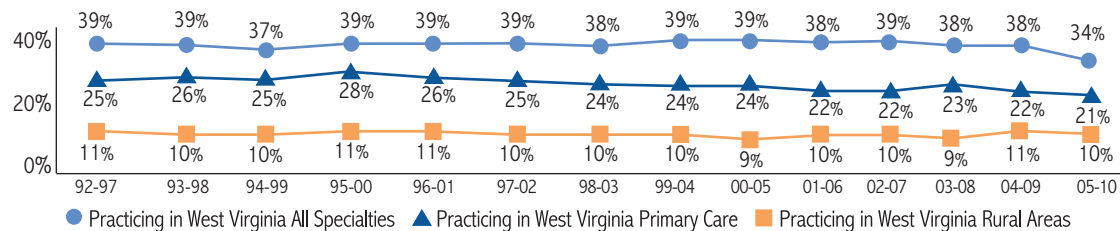
Medical School Graduates Retained, by Institution, Graduating Classes of 2005-2010

	Total Number	In Practice in WV	In Primary Care in WV	In Rural Areas of WV
Marshall University	244	78 (32%)	46 (19%)	12 (5%)
West Virginia School of Osteopathic Medicine	572	195 (34%)	133 (23%)	79 (14%)
West Virginia University	537	187 (35%)	102 (19%)	45 (8%)
TOTAL	1,353	460 (34%)	281 (21%)	136 (10%)

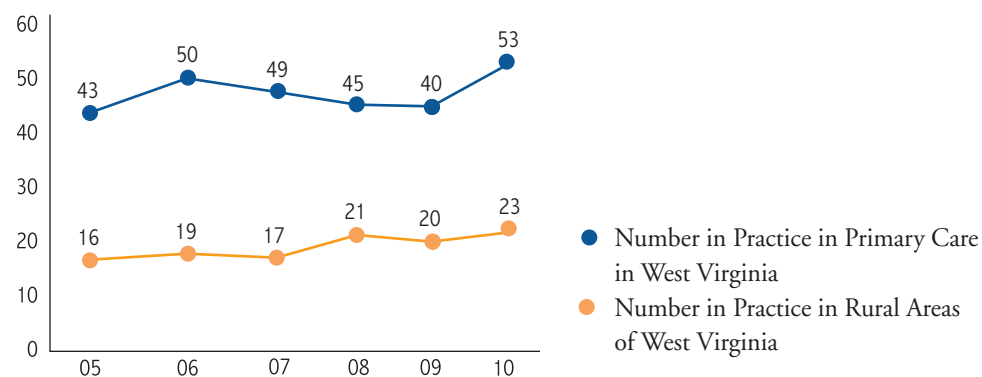
Number of West Virginia Medical School Graduates Retained, Graduating Classes of 1992-2010



Percentage of West Virginia Medical School Graduates Retained, Graduating Classes of 1992-2010



Number of West Virginia Medical School Graduates Practicing Primary Care or in Rural Areas, by Graduating Class



RESIDENCY TRAINING

West Virginia continues to focus on recruiting more physicians to the state, especially to its rural areas. The presence of physicians practicing primary care or in rural areas is critical to ensuring communities across the state can access quality care.

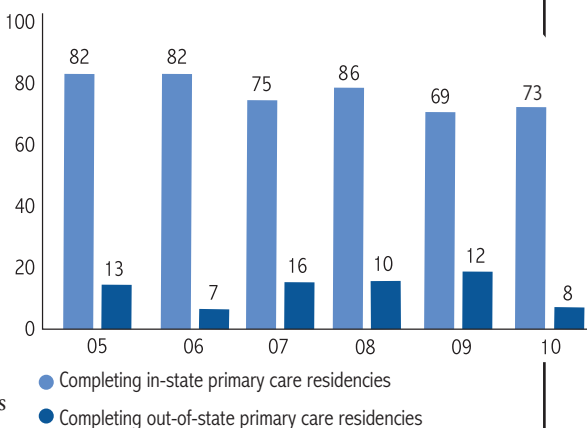
The table below illustrates recruitment of the most recent six-year cohort of West Virginia medical school graduates to all 55 counties of West Virginia. This information must be interpreted carefully, however. It is a snapshot of the placement of the most recent West Virginia medical school graduates only and does not include graduates of out-of-state medical schools or physicians of long-standing who are practicing in these counties. Thus, a zero listed in any column does not necessarily indicate that a county is underserved. At the same time, tracking this type of information over an extended period can help inform health and primary care education and training program activities and physician recruitment priorities.

West Virginia Medical School Graduates Practicing in West Virginia, by County, Graduating Classes of 2005-2010

County	Number in Practice	Number Practicing in Rural Areas	Number Practicing Primary Care	County	Number in Practice	Number Practicing in Rural Areas	Number Practicing Primary Care
Barbour	2	2	2	Mineral	2	2	2
Berkeley	10	0	7	Mingo	0	0	0
Boone	3	2	3	Monongalia	93	0	38
Braxton	0	0	0	Monroe	0	0	0
Brooke	1	0	1	Morgan	2	2	2
Cabell	65	0	38	Nicholas	5	5	4
Calhoun	0	0	0	Ohio	26	0	12
Clay	0	0	0	Pendleton	1	1	1
Doddridge	1	1	1	Pleasants	0	0	0
Fayette	5	6	5	Pocahontas	4	4	3
Gilmer	0	0	0	Preston	2	2	2
Grant	3	3	2	Putnam	6	2	5
Greenbrier	20	20	16	Raleigh	11	11	9
Hampshire	1	1	0	Randolph	6	6	2
Hancock	1	1	1	Ritchie	0	0	0
Hardy	0	0	0	Roane	1	1	1
Harrison	19	19	16	Summers	1	1	1
Jackson	1	1	1	Taylor	1	1	1
Jefferson	9	2	8	Tucker	0	0	0
Kanawha	101	0	55	Tyler	0	0	0
Lewis	4	4	4	Upshur	5	5	4
Lincoln	0	1	1	Wayne	2	0	0
Logan	2	2	0	Webster	2	2	1
Marion	8	8	5	Wetzel	3	3	1
Marshall	3	0	3	Wirt	1	0	1
Mason	2	2	1	Wood	11	0	11
McDowell	0	0	0	Wyoming	0	0	0
Mercer	13	13	9	TOTAL	460	136	281

Percentage of West Virginia Medical School Graduates Completing Primary Care Residencies Retained, Graduating Classes of 2005-2010

The location of a medical school graduate's residency program frequently predicts whether that graduate will practice in West Virginia. For the 2010 graduating class of West Virginia medical schools, 190 graduates went on to complete primary care residency programs (51 in-state and 139 out-of-state). Upon completing residency, 73 percent of the graduates who completed in-state primary care residencies were retained in West Virginia to practice, while only 8 percent of graduates who completed out-of-state primary care residencies returned to West Virginia to practice.



OTHER HEALTH SCIENCES PROGRAM GRADUATES

Medical education is only one track of graduate-level health sciences education occurring in West Virginia. Dental, advanced practice nursing, pharmacy, and physician assistant programs, among others, are offered by various public and private institutions in the state. The data below provides an overview of some of these programs at public institutions.

DENTISTRY: West Virginia University

Upon completion of their education, some dental graduates enter practice immediately, while others pursue dental residencies. Due to the logistics involved in establishing a practice, it often may take a dentist several months to establish a practice. Typically, the number of dentistry graduates practicing in West Virginia increases over time as more graduates establish practices and/or complete residency.

Dentistry Graduates Retained, by Graduating Class

	2014	2013	2012	2011	2010
Graduates Practicing in West Virginia	49 26 (53%)	45 22 (49%)	46 25 (54%)	48 18 (38%)	47 19 (40%)

PHARMACY: West Virginia University

In recent years, a decline has occurred in the number of West Virginia pharmacy graduates remaining in state to practice. This result may be due to two convergent factors: an increasing number of graduates both nationally and in West Virginia, coinciding with a decline in the number of employment opportunities for pharmacists in West Virginia. Consequently, more graduates are leaving the state in search of employment or to secure postgraduate residencies.

Pharmacy Graduates Retained, by Graduating Class

	2014	2013	2012	2011	2010
Graduates Practicing in West Virginia	82 52 (63%)	74 49 (66%)	81 53 (65%)	82 39 (48%)	84 51 (60%)

FAMILY NURSE PRACTITIONER:

West Virginia University Family Nurse Practitioner Graduates Retained, by Graduating Class

	2014	2013	2012	2011	2010
Graduates Practicing in West Virginia	79 65 (82%)	43 38 (88%)	53 41 (77%)	37 28 (76%)	46 38 (83%)

Marshall University Family Nurse Practitioner Graduates Retained, by Graduating Class

	2014	2013	2012	2011	2010
Graduates Practicing in West Virginia*	52	61	59	42	42

* Marshall University is unable to provide retention data for this report.

LOANS AND INCENTIVES

Health Sciences Service Program

The Health Sciences Service Program is a state-funded incentive program and is administered by the West Virginia Higher Education Policy Commission. The program provides financial awards to health professionals who agree to practice in underserved areas of the state upon completion of their education and training. Medical and dental students receive a \$20,000 award for a two-year service commitment. Doctoral clinical psychologists, licensed independent clinical social workers, nurse educators, nurse practitioners, physical therapists, pharmacists, and physician assistants receive a \$10,000 award for a two-year service commitment.

Since 1995, 162 participants have completed their service obligation. In 2014-15, 14 awards totaling \$200,000 were given to:

- Two medical students
- Four dental students
- Four nurse practitioner students
- Two doctoral clinical psychology students
- One physical therapy student
- One physician assistant student

Medical Student Loan Program

The Medical Student Loan Program, which is funded from student fees, is a need-based program for students at West Virginia medical schools and administered by the Commission. Institutions award loans of up to \$10,000 each year per eligible student, and a student may receive a loan in more than one year of medical school.

Upon graduation and once in practice, borrowers either must repay the loan or seek loan forgiveness. Borrowers are eligible for loan forgiveness of up to \$10,000 per year for each year they practice in West Virginia in an underserved area or in a medical shortage field. Borrowers are permitted to reapply for loan forgiveness in subsequent years.

Medical Student Loan Program Activity, by Program Year

	2014-2015	2013-2014	2012-2013	2011-2012	2010-2011
Loans Awarded in Fiscal Year	256	245	273	256	224
Total Amount Awarded	\$1,462,142	\$1,523,500	\$1,589,301	\$1,379,420	\$1,350,194
Amount of Unexpended Funds*	\$1,993,939	\$1,811,521	\$1,781,561	\$1,983,043	\$1,944,894
Loan Postponement**	24	26	30	16	14
Loan Forgiveness***	42	48	40	36	44
Default Rate on Previous Awards	2.5%	1.8%	1.9%	2.2%	2.6%

* Amount of unexpended funds includes loan repayments.

** Loan postponement is the number of borrowers who applied for the first time in a given year to begin practicing toward earning loan forgiveness. If these borrowers complete one year of service, they receive up to \$10,000 in loan forgiveness at the end of the year, and then, are included in the subsequent year's loan forgiveness count.

*** Loan forgiveness is the number of borrowers who received up to \$10,000 in loan forgiveness in a given year.





RURAL HEALTH INITIATIVE PROGRAM

The West Virginia Rural Health Initiative is contained in West Virginia Code §18B-16-1 et seq. and focuses on several goals, including:

1. Increasing the recruitment of healthcare providers to rural areas.
2. Increasing the retention rate of healthcare providers in rural areas.
3. Developing pipeline programs to enhance student interest in rural healthcare careers.
4. Supporting the involvement of rural areas of the state in the health education process.

Overall responsibility for the Rural Health Initiative rests with the Vice Chancellor for Health Sciences at the West Virginia Higher Education Policy Commission. To carry out the goals, the Commission grants funding to the Joan C. Edwards School of Medicine at Marshall University, the West Virginia School of Osteopathic Medicine, and the West Virginia University Health Sciences Center (“the academic health centers”). Additionally, the Commission makes grants to other institutions, healthcare facilities, and nonprofit organizations to further advance Rural Health Initiative activities across the state. The following pages contain program overviews for each of the academic health center’s Rural Health Initiative activities during state fiscal year 2015.

MARSHALL UNIVERSITY JOAN C. EDWARDS SCHOOL OF MEDICINE

The Marshall University Joan C. Edwards School of Medicine is dedicated to providing high quality medical education and postgraduate training programs to foster a skilled physician workforce to meet the unique healthcare needs of West Virginia. Marshall is committed to the development of innovative, rural initiatives that encourage and prepare students and residents to practice in rural communities.

INCREASE THE RECRUITMENT OF HEALTHCARE PROVIDERS TO RURAL AREAS

The Rural Residency Program is a collaborative educational partnership with Lincoln Primary Care Center. The program allows Family Medicine residents to complete continuity care clinics in rural primary care, rural obstetrics, and rural nursing home as well as participate in rotations in pediatric and adolescent care. Given the area’s geriatric population, residents routinely conduct home visits to increase patient access to care. Two residents completed the Rural Residency Program in 2015 with more than 3,000 patient encounters in this medically underserved area.

Another initiative underway at Marshall is the Rural Health Scholars Program. Students and primary care residents are selected as Rural Health Scholars based on their interest in rural medicine and commitment to practicing in West Virginia. Rural Health Scholars have opportunities to do rural clinical rotations, rural research, and community-based initiatives. In addition, they can serve as a resource for other students and residents considering rural health. Two Family Medicine residents completed their residency as Rural Health Scholars in June 2015. Three Family Medicine residents and one Medicine/ Pediatrics resident continue to work in a medically underserved community providing patient care.

Conducting research on rural topics gives students and residents opportunities to learn about study design and methodology while becoming immersed in a rural community or health issue. Students and residents, with faculty mentors, can apply for rural research grants.

Four residents and seven students are currently participating in rural research with topics such as: *A smartphone application to enhance the quality of life of patients with congestive heart failure in West Virginia; Distance to specialist care is associated with survival in patients with gynecologic malignancies; The use of telemedicine to decrease teen pregnancy and school dropout rates in rural McDowell County; and, West Virginia and reading experiences in rural children's first year of life.*

The first Joan C. Edwards School of Medicine Research Conference focusing on rural projects was held in October 2014. This conference will be a biennial event. Many of these projects have been presented on both the state and national level as well as published in peer-reviewed journals.

INCREASE THE RETENTION RATE OF HEALTHCARE PROVIDERS IN RURAL AREAS

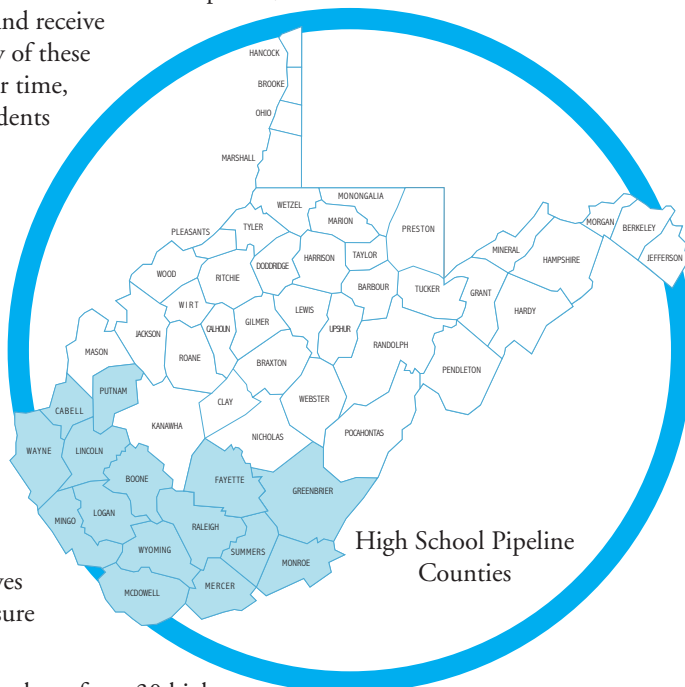
Newly graduated residents can participate in a Rural Health Fellowship Program while beginning their rural practice. The program strengthens their ties to the medical school after graduation and can reduce the isolation of rural practice while allowing them to explore additional clinical areas they might not have had time for during residency. Dr. Kimberly Becher in Clay County completed her Rural Health Fellowship, which allowed her to explore her interest and actively engage in health policy issues. Dr. Becher continues to teach medical students and residents regarding health policy changes and effects on their practice through one-on-one interactions and forums.

Dr. Becher also is one of the many rural faculty members who serve as the backbone of rural rotation experiences. A strong partnership between Marshall and rural faculty is critical to ensuring rural faculty keep abreast of curriculum development, changes in educational guidelines, and receive regular updates and training. Many of these exceptional physicians dedicate their time, energy and enthusiasm to teach students in addition to the work they do in West Virginia's underserved communities.

DEVELOP PIPELINE PROGRAMS TO ENHANCE STUDENT INTEREST IN RURAL HEALTHCARE CAREERS

The Joan C. Edwards School of Medicine has developed an active pipeline program that begins in high school and continues through college, medical school, residency training, and into practice. This program includes dozens of initiatives along the pathway to increase exposure to health professions careers.

High school activities drew 2,800 students from 30 high schools in 15 counties who participated in a total of 69 events and also involved several collaborative events with entities serving minority and underserved students. Evaluations showed a marked increase in the students' health career knowledge after participation. Activities included trips to Marshall's anatomy lab, real-time surgeries via videoconference, hands-on suturing workshops, and lectures from a variety of healthcare specialists.





School of medicine staff members presented the pipeline program initiative at the National Rural Health Conference and the West Virginia Science Teachers Association Conference.

On the college level, the third annual residential academy was held on the Marshall campus on June 1-5, 2015 to prepare undergraduate students interested in medical school. Twenty-two percent of previous participants have matriculated to medical school, and an additional 11 percent of participants are pursuing other related health professions.

SUPPORT THE INVOLVEMENT OF RURAL AREAS OF THE STATE IN THE HEALTH EDUCATION PROCESS

The Chapmanville teaching hub utilizes technological and human resources to work on chronic healthcare problems in the southern region, while also implementing educational objectives and research activities. This unique approach is anticipated to increase recruitment and retention of healthcare providers in the area and also improve the overall well-being of the communities. Registered nursing students from Southern West Virginia Community and Technical College, medical students, and students from local colleges routinely participate in rural rotations and shadowing opportunities.

THE WEST VIRGINIA SCHOOL OF OSTEOPATHIC MEDICINE

The Rural Health Initiative mission is to enhance the rural, primary care curriculum at the West Virginia School of Osteopathic Medicine (WVSOM) in order to produce graduates uniquely qualified to practice medicine in underserved communities of West Virginia. A major focus of activity is the WVSOM RHI Program, which is a cohort of medical students interested in rural practice who apply and are selected to participate during medical school with additional opportunities in residency.

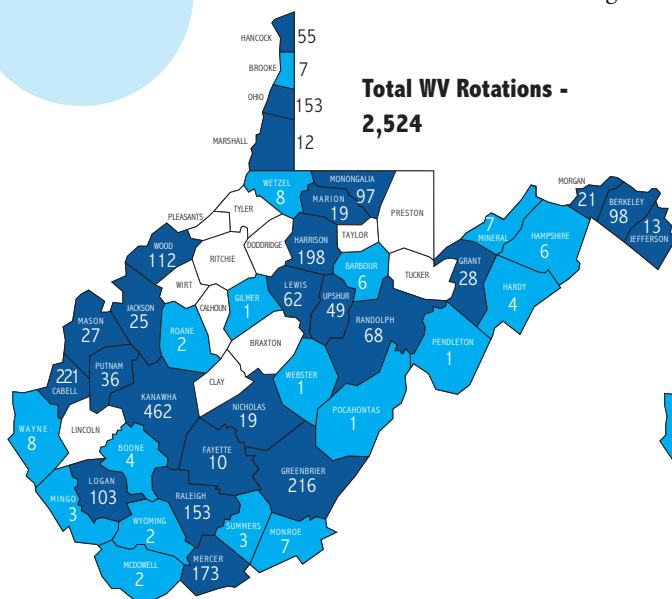
INCREASE THE RECRUITMENT OF HEALTHCARE PROVIDERS TO RURAL AREAS

RHI Rural Practice Day 2015

- The fourth annual Rural Practice Day event drew 146 WVSOM students, spouses/significant others, faculty/employees, rural hospitals/clinics, and speakers.
- The event illustrated to attendees the capabilities of air medical transportation services in rural areas by hosting a training exercise for multiple agencies including the West Virginia National Guard, Lewisburg Fire Department, Greenbrier and Summers County EMS departments, HealthNet, Air Evac, and the West Virginia State Police.

Rural Rotations 2014-2015

WVSOM third and fourth year students completed 1,436 rotations in rural or underserved areas during the academic year 2014-2015.



INCREASE THE RETENTION RATE OF HEALTHCARE PROVIDERS IN RURAL AREAS

Residency Sign on Incentive

Six of the 12 RHI Graduates from Class of 2015 received a \$5,000 sign-on incentive for acceptance into primary care residencies in West Virginia.

- Ohio Valley Medical Center, Wheeling: one Internal Medicine resident
- Marshall University, Huntington: one Psychiatry and one Family Medicine resident
- Charleston Area Medical Center, Charleston: one Family Medicine resident
- Greenbrier Valley Medical Center, Ronceverte: one Family Medicine resident
- Cornerstone Teaching Health Center/Monongalia General Hospital, Morgantown: one Family Medicine resident

Mentor Program

All RHI students receive a mentor who is a rural practitioner and who contacts the student by email, text/phone, or in person. Mentors submit report forms monthly to document their interactions with the students and track students' continuing interest in rural primary care. Currently, the RHI program has 12 RHI mentors. During the FY 2015 academic year, the mentors contacted the students 23 percent by email, 58 percent by text/phone, and 19 percent in person.

Five RHI mentors attended the Mid-Winter CME mentor workshop held on January 31, 2015 in Charleston, which focused on optimum documentation of student/mentor interaction.

DEVELOP PIPELINE PROGRAMS TO ENHANCE STUDENT INTEREST IN RURAL HEALTHCARE CAREERS

High School Pipeline

The WVSOM RHI Coordinator, along with the Admissions and Recruitment Offices, SWC Assistant Deans and Directors, and the Anatomy Lab conducted pipeline activities for 9,157 high school students to introduce them to rural medicine opportunities in West Virginia.

Green Coat Program

Four students from University of Charleston completed the second WVSOM RHI Green Coat Program at Charleston Area Medical Center on December 29, 2014. Students must have a GPA of 3.0 or higher and be majoring in a health-related field.

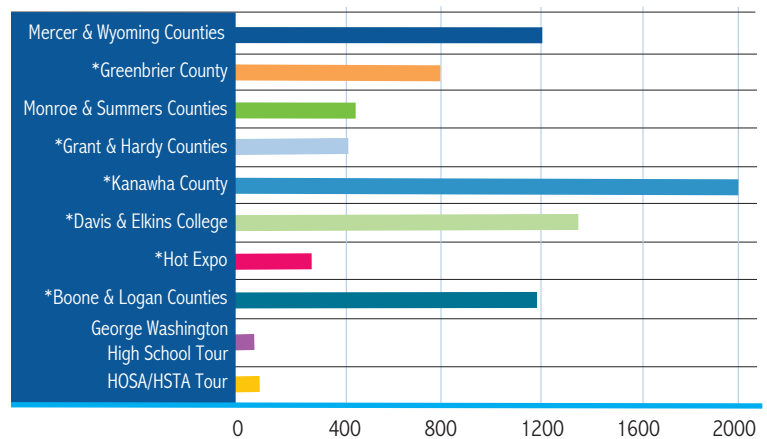
SUPPORT THE INVOLVEMENT OF RURAL AREAS OF THE STATE IN THE HEALTH EDUCATION PROCESS

RHI Activities

Rural Health Initiative activities acquaint RHI students with statewide industries to improve their understanding of environmental exposures, which could cause injury/diseases to rural patients.

Six RHI Activities occurred during FY 2015 including:

- National Institute for Occupational Safety & Health (NIOSH), Morgantown, September 29, 2014
- Timber and Logging Industry, Greenbrier County, October 21, 2014
- Coal Mine Industry, Beaver, December 8, 2014
- Underground Mine Tour, Raleigh County, December 9, 2014
- Rural Workforce Day, Charleston, January 22, 2015
- Community Outreach, Mingo County, May 19-20, 2015



* Indicates multiple high schools participated.

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE

INCREASE THE RECRUITMENT OF HEALTHCARE PROVIDERS TO RURAL AREAS

Support for Students with Rural Health Interests

West Virginia University (WVU) awarded substantial scholarships to three medical and three dental students in exchange for their commitment to practice in an underserved area of West Virginia after graduation. The dental students will be practicing in Berkeley, Calhoun and Clay counties, and the medical students will select practice sites after completing their residencies. Additionally, WVU supplemented a stipend provided by Grant Memorial Hospital for a third-year primary care resident at \$500 per month for 12 months who then began practice in Petersburg in July 2015. West Virginia University will track these scholarship and stipend recipients to assess recruitment and retention efforts.

The Rural Track (RT) program in the WVU Department of Family Medicine completed its fourth year. Rural Track students spend 3-4 weeks at a rural site the summer before medical school and the summer between their first and second year. Additionally, they spend 12 weeks in a rural community in their third year and eight weeks in their fourth year of medical school. In the spring of 2015, the Department of Family Medicine signed on eight additional Rural Track students for a total of 24 medical students currently in the RT. Eight upcoming first and second year Rural Track students received stipends for summer rotations in Barbour, Harrison, Jefferson, Preston and Wyoming counties.

Ten additional stipends were awarded to first and second-year medical students who completed summer rotations with family medicine physicians in Grant, Harrison, Jefferson, Mason, Nicholas, Preston, Taylor and Wirt counties.

The interprofessional student Rural Health Interest Group held four meetings where students discussed topics that impact rural health care and delivery in the state. Additionally, students who participated in Project R.E.A.C.H (Rural Education Alliance for Community Health), a student-led service organization, provided screening services at four different events to approximately 300 primarily rural residents of Fayette, Hampshire and Preston counties.



Participation in Community-Based Clinical Activities

WVU Student/Resident Community-based Clinical Activity between 7/1/14 – 6/30/15

School or Program	Number of students participating in community-based rotations	Number of students participating in rural rotations	Number of student-weeks* at rural sites	Number of student-weeks* in a primary care or dental Health Professional Shortage area (HPSA)	Number of rural or community-based faculty serving as preceptors
Dental	46	30	197	119	52
Dental Hygiene	37	25	102	98	
Family Medicine Residents	10	8	33	25	110
Medicine	209	129	657	553	
Nursing	162	128	1,775	0	24
Nurse Practitioner	39	29	536	338	94
Pathology Assistant	4	0	0	0	1
Pharmacy	179	141	854	0	95
Physical Therapy	50	34	272	0	43
TOTAL	736	524	4,426	1,133	419

* Most students completed approximately 40 hours/week. West Virginia University and West Virginia University Institute of Technology nursing students completed 8-12 hours/week. Nurse practitioner students completed approximately 500 hours over two full semesters. Residents completed 30-40 hours/week.

Housing for Students on Clinical Rotations

West Virginia University has been the recipient of a federal Area Health Education Center (AHEC) grant since 2000 and has contracts with the five AHEC Centers for services that include the management of 16 houses across the state. These houses are used by students from WVU and other educational institutions while on their clinical rotations in rural or underserved areas. During FY 2015, the AHEC Centers scheduled 766 weeks of student housing.

INCREASE THE RETENTION RATE OF HEALTHCARE PROVIDERS IN RURAL AREAS

Honoraria and Services for Community-Based Preceptors

Efforts to keep quality rural medical preceptors involved in teaching and mentoring have been vital. West Virginia University has affiliation agreements with 262 rural medical facilities and/or physicians to train students. Physicians who precept medical students who are fulfilling their rural or community-based requirement are eligible for an honorarium. In FY 2015, 14 preceptors collectively donated \$23,500 of their honoraria back to a scholarship fund for students who intend to practice in underserved areas of West Virginia.

Uncompensated Care Provided by Dental and Dental Hygiene Students

Dental and dental hygiene students provide dental care for West Virginians who cannot afford it. During FY 2015, students on rural rotations at dental sites provided \$3,525,415 in uncompensated care and performed more than 17,760 procedures.

Continuing Education for Rural Providers

The WVU contract with the five AHECs also provided support for 32 continuing education events that were attended by 1,322 people, 604 of whom were from a rural workplace. Twenty-four events were held in rural locations.

SUPPORT THE INVOLVEMENT OF RURAL AREAS OF THE STATE IN THE HEALTH EDUCATION PROCESS

Interprofessional Learning Opportunities for Students

The development of InterProfessional Team (IPT) building skills by rural healthcare professionals, assists in effectively managing a heavy workload, and improves quality of care. West Virginia University contracted with four of the five AHECs to coordinate IPT experiences for students at rural sites or Federally Qualified Health Centers (FQHCs). Sixty team meetings were held with participation by 58 students from five disciplines to address a variety of topics including flu prevention, reducing hospital readmissions, oral health, and minority health disparities.

DEVELOP PIPELINE PROGRAMS TO ENHANCE STUDENT INTEREST IN RURAL HEALTHCARE CAREERS

West Virginia University provided support for field trips for 51 Health Sciences and Technology Academy (HSTA) clubs comprised of 301 disadvantaged and minority high school students. In addition, WVU contracted with the AHECs to provide 32 pipeline programs. These programs included:

- Two high school health career clubs in Berkeley and Grant counties that provided 20-25 hours of programming for a total of 74 students.
- A shadowing program of approximately 120 hours for seven high school students at the Minnie Hamilton Health Center, a FQHC in Calhoun County.
- A health career day in Randolph County for 300 high school students from seven counties.
- Coordination of presentations at two Wyoming County high schools by Dr. Joanna Bailey to 148 students on “becoming a rural physician.”







Health Sciences Report Card 2015

West Virginia Higher Education Policy Commission
Vice Chancellor for Health Sciences
Robert B. Walker, M.D.

1018 Kanawha Boulevard, East, Suite 700
Charleston, West Virginia 25301

www.wvhepc.edu

